United Nations A/CN.9/467

General Assembly

Distr.: General
5 April 2000

Original: English

**United Nations Commission on International Trade Law**
Thirty-third session
New York, 12 June-7 July 2000

# Report of the Working Group on Electronic Commerce on the work of its thirty-sixth session (New York, 14-25 February 2000)

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V.00-52884

## Introduction

1. The Commission, at its twenty-ninth session (1996), decided to place the issues of digital signatures and certification authorities on its agenda. The Working Group on Electronic Commerce was requested to examine the desirability and feasibility of preparing uniform rules on those topics. It was agreed that the uniform rules to be prepared should deal with such issues as: the legal basis supporting certification processes, including emerging digital authentication and certification technology; the applicability of the certification process; the allocation of risk and liabilities of users, providers and third parties in the context of the use of certification techniques; the specific issues of certification through the use of registries; and incorporation by reference.[1]

2. At its thirtieth session (1997), the Commission had before it the report of the Working Group on the work of its thirty-first session (A/CN.9/437). The Working Group indicated to the Commission that it had reached consensus as to the importance of, and the need for, working towards harmonization of law in that area. While no firm decision as to the form and content of such work had been reached, the Working Group had come to the preliminary conclusion that it was feasible to undertake the preparation of draft uniform rules at least on issues of digital signatures and certification authorities, and possibly on related matters. The Working Group recalled that, alongside digital signatures and certification authorities, future work in the area of electronic commerce might also need to address: issues of technical alternatives to public-key cryptography; general issues of functions performed by third-party service providers; and electronic contracting (A/CN.9/437, paras. 156-157).

3. The Commission endorsed the conclusions reached by the Working Group and entrusted the Working Group with the preparation of draft uniform rules on the legal issues of digital signatures and certification authorities (hereinafter referred to as "the Uniform Rules").

4. With respect to the exact scope and form of the Uniform Rules, the Commission generally agreed that no decision could be made at this early stage of the process. It was felt that, while the Working Group might appropriately focus its attention on the issues of digital signatures in view of the apparently predominant role played by public-key cryptography in the emerging electronic-commerce practice, the Uniform Rules should be consistent with the media-neutral approach taken in the UNCITRAL Model Law on Electronic Commerce (hereinafter referred to as "the Model Law"). Thus, the Uniform Rules should not discourage the use of other authentication techniques. Moreover, in dealing with public-key cryptography, the Uniform Rules might need to accommodate various levels of security and to recognize the various legal effects and levels of liability corresponding to the various types of services being provided in the context of digital signatures. With respect to certification authorities, while the value of market-driven standards was recognized by the Commission, it was widely felt that the Working Group might appropriately envisage the establishment of a minimum set of standards to be met by certification authorities, particularly where cross-border certification was sought.[2]

5. The Working Group began the preparation of the Uniform Rules at its thirty-second session on the basis of a note prepared by the Secretariat (A/CN.9/WG.IV/WP.73).

6. At its thirty-first session (1998), the Commission had before it the report of the Working Group on the work of its thirty-second session (A/CN.9/446). The Commission expressed its appreciation of the efforts accomplished by the Working Group in its preparation of draft Uniform Rules on Electronic Signatures. It was noted that the Working Group, throughout its thirty-first and thirty-second sessions, had experienced manifest difficulties in reaching a common understanding of the new legal issues that arose from the increased use of digital and other electronic signatures. It was also noted that a consensus was still to be found

as to how those issues might be addressed in an internationally acceptable legal framework. However, it was generally felt by the Commission that the progress realized so far indicated that the draft Uniform Rules on Electronic Signatures were progressively being shaped into a workable structure.

7. The Commission reaffirmed the decision made at its thirty-first session as to the feasibility of preparing such Uniform Rules and expressed its confidence that more progress could be accomplished by the Working Group at its thirty-third session (New York, 29 June-10 July 1998) on the basis of the revised draft prepared by the Secretariat (A/CN.9/WG.IV/WP.76). In the context of that discussion, the Commission noted with satisfaction that the Working Group had become generally recognized as a particularly important international forum for the exchange of views regarding the legal issues of electronic commerce and for the preparation of solutions to those issues.[1]

8. At its thirty-second session (1999), the Commission had before it the report of the Working Group on the work of its thirty-third (July 1998) and thirty-fourth (February 1999) sessions (A/CN.9/454 and 457). The Commission expressed its appreciation for the efforts accomplished by the Working Group in its preparation of draft uniform rules on electronic signatures. While it was generally agreed that significant progress had been made at those sessions in the understanding of the legal issues of electronic signatures, it was also felt that the Working Group had been faced with difficulties in the building of a consensus as to the legislative policy on which the uniform rules should be based.

9. A view was expressed that the approach currently taken by the Working Group did not sufficiently reflect the business need for flexibility in the use of electronic signatures and other authentication techniques. As currently envisaged by the Working Group, the Uniform Rules placed excessive emphasis on digital signature techniques and, within the sphere of digital signatures, on a specific application involving third-party certification. Accordingly, it was suggested that work on electronic signatures by the Working Group should either be limited to the legal issues of cross-border certification or be postponed altogether until market practices were better established. A related view expressed was that, for the purposes of international trade, most of the legal issues arising from the use of electronic signatures had already been solved in the UNCITRAL Model Law on Electronic Commerce. While regulation dealing with certain uses of electronic signatures might be needed outside the scope of commercial law, the Working Group should not become involved in any such regulatory activity.

10. The widely prevailing view was that the Working Group should pursue its task on the basis of its original mandate (see above, para. 3). With respect to the need for uniform rules on electronic signatures, it was explained that, in many countries, guidance from UNCITRAL was expected by governmental and legislative authorities that were in the process of preparing legislation on electronic signature issues, including the establishment of public key infrastructures (PKI) or other projects on closely related matters (see A/CN.9/457, para. 16). As to the decision made by the Working Group to focus on PKI issues and PKI terminology, it was recalled that the interplay of relationships between three distinct types of parties (i.e., key holders, certification authorities and relying parties) corresponded to one possible PKI model, but that other models were conceivable, e.g., where no independent certification authority was involved. One of the main benefits to be drawn from focusing on PKI issues was to facilitate the structuring of the Uniform Rules by reference to three functions (or roles) with respect to key pairs, namely, the key issuer (or subscriber) function, the certification function and the relying function. It was generally agreed that those three functions were common to all PKI models. It was also agreed that those three functions should be dealt with irrespective of whether they were in fact served by three separate entities or whether two of those functions were served by the same person (e.g., where the certification authority was also a relying party). In addition, it was widely felt that focusing on the functions typical of PKI and not on any specific model might make it easier to develop a fully media-neutral rule at a later stage (ibid., para. 68).

11. After discussion, the Commission reaffirmed its earlier decisions as to the feasibility of preparing such uniform rules (see above, paras. 3 and 7) and expressed its confidence that more progress could be accomplished by the Working Group at its forthcoming sessions.[4]

12. The Working Group on Electronic Commerce, which was composed of all the States members of the Commission, held its thirty-sixth session in New York from 14 to 25 February 2000. The session was attended by representatives of the following States members of the Working Group: Algeria, Australia, Austria, Brazil, Bulgaria, Cameroon, China, Colombia, Egypt, Finland, France, Germany, Honduras, Hungary, India, Iran (Islamic Republic of), Italy, Japan, Lithuania, Mexico, Nigeria, Romania, Russian Federation, Singapore, Spain, Thailand, United Kingdom of Great Britain and Northern Ireland and United States of America.

13. The session was attended by observers from the following States: Angola, Argentina, Belgium, Bolivia, Canada, Cuba, Czech Republic, Gabon, Indonesia, Iraq, Israel, Kuwait, Kyrgyzstan, Morocco, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Saudi Arabia, Sierra Leone, Sweden, Switzerland, Trinidad and Tobago, Tunisia and Turkey.

14. The session was attended by observers from the following international organizations: Economic Commission for Europe, United Nations Conference on Trade and Development (UNCTAD), United Nations Development Programme/ Inter-Agency Procurement Services Office (UNDP/IAPSO), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Industrial Development Organization (UNIDO), World Intellectual Property Organization (WIPO), African Development Bank, Commonwealth Secretariat, European Commission, Organisation for Economic Cooperation and Development (OECD), Organization of the American States (OAS), Cairo Regional Centre for International Commercial Arbitration, Commercial Finance Association (CFA), Electronic Frontier Foundation Europe, Grupo Latinoamericano de Abogados para el Derecho del Comercio Internacional (GRULACI), Inter-American Bar Association, International Bar Association (IBA), International Chamber of Commerce (ICC), Internet Law and Policy Forum (ILPF), Society for Worldwide Interbank Financial Telecommunication (SWIFT), World Association of Former United Nations Interns and Fellows (WAFUNIF), *Union internationale des avocats* and *Union internationale du notariat latin* (UINL).

15. The Working Group elected the following officers:

*Chairman*: Mr. Jacques GAUTHIER (Canada, elected in his personal capacity);

*Rapporteur*: Mr. Aly Sayed KASSEM (Egypt).

16. The Working Group had before it the following documents: provisional agenda (A/CN.9/WG.IV/WP.83); note by the Secretariat containing revised draft uniform rules on electronic signatures (A/CN.9/WG.IV/WP.84).

17. The Working Group adopted the following agenda:

1. Election of officers.

2. Adoption of the agenda.

3. Legal aspects of electronic commerce: draft uniform rules on electronic signatures.

4. Other business.

5. Adoption of the report.

# I. Deliberations and decisions

18. The Working Group discussed the issue of electronic signatures on the basis of the note prepared by the Secretariat (A/CN.9/WG.IV/WP.84). The deliberations and conclusions of the Working Group with respect to those issues are reflected in section II below.

19. After discussion of draft articles 1 and 3 to 12, the Working Group adopted the substance of those draft articles and referred them to a drafting group to ensure consistency between the provisions of the Uniform Rules. The Working Group subsequently reviewed the report of the drafting group, which is contained in the annex to this report.

20. The Secretariat was requested to prepare a draft guide to enactment of the provisions adopted. Subject to approval by the Commission, the Working Group recommended that draft articles 2 and 13 of the Uniform Rules, together with the guide to enactment, be reviewed by the Working Group at a future session.

# II. Draft uniform rules on electronic signatures

## A. General remarks

21. At the outset, the Working Group exchanged views on current developments in regulatory issues arising from electronic commerce, including adoption of the Model Law, electronic signatures and public key infrastructure (referred to here as "PKI") issues in the context of digital signatures. These reports, at the governmental level, confirmed that addressing electronic commerce legal issues was recognized as essential for the implementation of electronic commerce and the removal of barriers to trade. It was reported that a number of countries had introduced recently, or were about to introduce, legislation either adopting the Model Law or addressing related electronic commerce facilitation issues. A number of those legislative proposals also dealt with electronic (or in some cases, specifically digital) signature issues.

## B. Consideration of draft articles

### Article 1. Sphere of application

22. The text of article 1 as considered by the Working Group was as follows:

"These Rules apply where electronic signatures are used in the context* of commercial** activities. They do not override any rule of law intended for the protection of consumers.

"* The Commission suggests the following text for States that might wish to extend the applicability of these Rules:

"These Rules apply where electronic signatures are used, except in the following situations: [...]".

"** The term 'commercial' should be given a wide interpretation so as to cover matters arising from all relationships of a commercial nature, whether contractual or not. Relationships of a commercial nature include, but are not limited to, the following transactions: any trade transaction for the supply or exchange of goods or services; distribution agreement; commercial representation or agency; factoring; leasing; construction of works; consulting; engineering; licensing; investment; financing; banking; insurance; exploitation agreement or concession; joint venture and other forms of industrial or business cooperation; carriage of goods or passengers by air, sea, rail or road."

23. The Working Group generally agreed that draft article 1 as currently drafted was acceptable. It was adopted in substance, subject to possible reconsideration after review of the text by a drafting group to ensure consistency between the provisions of the Uniform Rules.

24. After discussion of draft article 1, the Working Group decided to postpone consideration of the definitions in draft article 2 until it had completed its review of the substantive provisions of the Uniform Rules.

**Article 3. [Technology neutrality] [Equal treatment of signatures]**

25. The text of article 3 as considered by the Working Group was as follows:

"None of the provisions of these Rules shall be applied so as to exclude, restrict, or deprive of legal effect any method [of *electronic* signature] [that satisfies the requirements *referred to in article 6(1) of these Rules*][*which is as reliable as was appropriate for the purpose for which the data message was generated or communicated, in the light of all the circumstances, including any relevant agreement*] [*or otherwise meets the requirements of applicable law*]."

26. An initial concern was raised as to the need for an article along the lines of draft article 3. It was pointed out that the original intention of the draft article was to ensure that signature technologies that could be demonstrated to meet the requirements of draft article 6 (1) should not be discriminated against, even if they could not be considered to be within the definition of enhanced electronic signatures. It was suggested that, if the distinction between electronic signatures and enhanced electronic signatures was not maintained in the Uniform Rules, draft article 3 might not be required

.

27. As to the title of draft article 3, one view was that "Technology neutrality" was preferable since it stated clearly a principle upon which it was agreed the Uniform Rules should be based. In support of that view, it was suggested that the phrase "Equal treatment" might lead to some confusion with the principle of non-discrimination set forth in draft article 13. Another view was that neither title properly described the content of draft article 3, which was that all technologies were to be given the same opportunity to satisfy the requirements of draft article 6. After discussion, the Working Group decided to combine both alternatives.

28. With regard to the first text in square brackets in draft article 3, "[of electronic signatures]", it was suggested that the Uniform Rules should refer consistently to either "a method" or "an electronic signature", but not to both, as that would not be consistent with the Model Law. Another view was that the reference should be to an "electronic signature", as that was the subject of the Uniform Rules. As a compromise, it was proposed that draft article 3 should refer to "any method of creating an electronic signature". That proposal received general support.

29. With regard to the second set of words in square brackets, there was general agreement that the formulation "that satisfies the requirements referred to in article 6 (1) of these Rules" was preferable to the formulation which set out in full the terms of article 7 (1) (b) of the

Model Law, as those words were already included in draft article 6 and did not need to be repeated in draft article 3.

30. Some concerns were expressed about the meaning of the final words in square brackets, "[or otherwise meets the requirements of applicable law.]". One view was that those words should be retained as they provided a degree of flexibility to the draft article and recognized the possibility of a standard which was lower than that set forth in article 7 of the Model Law (and draft article 6 of the Uniform Rules). A contrary view was that, if the parties agreed to use a higher standard than that approved by applicable law (assuming applicable law to reflect the terms of article 7 of the Model Law), it would not be covered by the current draft of article 3. Another view was that those words were too narrow and did not take sufficient account of the importance of trade practices and usages that might be relevant where, for example, a self-regulatory approach was adopted towards electronic signatures. A contrary view was that those trade practices and usages, if relevant, would be included within, or reflected by, applicable law and if they were not, they should have no application in the context of draft article 3. A further suggestion was that the reference to applicable law could be deleted, since any State adopting the Uniform Rules would always have to consider how the Uniform Rules would relate to existing law, which would clearly be the applicable law referred to in the draft article.

31. Another issue of concern with respect to draft article 3 was its relationship to draft article 5 and the concept of party autonomy. It was suggested that the opening words "None of the provisions of these Rules" could be construed as excluding the ability of parties to agree to something other than the requirements of draft article 6 (1), whether more or less than that standard. A contrary view was that that was not a correct interpretation of the two draft articles and draft article 3 would clearly be subject to draft article 5 unless otherwise stated in draft article 3. It was pointed out that the question of party agreement in any event was included in draft article 6 (1), which specifically referred to the need to consider all circumstances "including any relevant agreement" and could be included within the reference to applicable law. It was also suggested that that issue was one of drafting, not of substance, and could be addressed by reversing the order of draft articles 3 and 5, by including appropriate wording in either draft article 3 or draft article 5, or by ensuring that the relationship between draft articles 3 and 5 was explained clearly in a guide to enactment.

32. After discussion, the Working Group adopted the following text of the draft article subject to possible reconsideration after review of the text by a drafting group to ensure consistency between the provisions of the Uniform Rules:

> "None of these Rules, except article 5, shall be applied so as to exclude, restrict or deprive of legal effect any method of creating an electronic signature that satisfies the requirement referred to in article 6 (1) of these Rules or otherwise meets the requirements of applicable law."

**Article 4. Interpretation**

33. The text of draft article 4 as considered by the Working Group was as follows:

> "(1) In the interpretation of these Uniform Rules, regard is to be had to their international origin and to the need to promote uniformity in their application and the observance of good faith.
>
> "(2) Questions concerning matters governed by these Uniform Rules which are not expressly settled in them are to be settled in conformity with the general principles on which these Uniform Rules are based."

34. The substance of draft article 4 was found generally acceptable. It was adopted subject to review of the text by a drafting group to ensure consistency between the various provisions

of the Uniform Rules and the various language versions.

35. In the context of the discussion of draft article 4, it was observed that the Uniform Rules should provide indication as to the principles on which they were based. For example, it was generally agreed that the principle of technology neutrality expressed in draft article 3 should be listed among the principles referred to in draft article 4. It was suggested that a preamble to the Uniform Rules, to be discussed for possible inclusion at a later stage, would be an appropriate place for stating such principles.

**Article 5. [Variation by agreement] [Party autonomy] [Freedom of contract]**

36. The text of draft article 5 as considered by the Working Group was as follows:

> "These Rules may be derogated from or [their effect may be] varied by agreement, unless otherwise provided in these Rules or in the law of the enacting State."

37. The Working Group discussed the title of draft article 5. It was generally agreed that, for reasons of consistency with article 4 of the Model Law, the title "Variation by agreement" should be adopted. "Party autonomy" and "Freedom of contact" were generally regarded as mere restatements of the general principles underpinning draft article 5.

38. As to the way in which the principle of party autonomy was expressed in draft article 5, various suggestions of a drafting nature were made. One suggestion was that the conjunction "and" was preferable to "or" to indicate that both derogation from and variation of the Uniform Rules were envisaged by the draft provision. Another suggestion was that reference should be made to "variation by agreement expressed or implied". After discussion, it was generally agreed that, to the extent possible, the wording of draft article 5 should be kept in line with article 6 of the United Nations Convention on Contracts for the International Sale of Goods (hereinafter referred to as "the United Nations Sales Convention"). Appropriate explanations regarding variation by way of an implied agreement might be included in a guide to enactment of the Uniform Rules.

39. A suggestion was made that the Uniform Rules might include also wording drawn from articles 9 and 11 of the United Nations Sales Convention. The widely prevailing view, however, was that such provisions, which were needed in the text of an international convention, would be superfluous in uniform rules.

40. With respect to the words "unless otherwise provided in these Rules", it was generally agreed that the matter might need to be reconsidered after the Working Group had completed its review of the draft articles. Pending a decision as to whether the Uniform Rules would contain any mandatory provision, the words "unless otherwise provided in these Rules" should be placed within square brackets.

41. As to the words "unless otherwise provided in the law of the enacting State", the view was expressed that redrafting was necessary to avoid creating the impression that enacting States were encouraged to establish mandatory legislation limiting the effect of party autonomy with respect to electronic signatures. It was suggested that the words "unless the agreement is not otherwise enforceable under the law of the enacting State" might be used. Another suggestion was to express the principle of party autonomy without restriction and to introduce a new paragraph along the following lines: "The provisions of this article do not apply to the following: ...".

42. It was observed that, in some legal systems, the notion of an agreement being unenforceable would adequately cover all cases where public policy, mandatory law or court discretion might limit the effectiveness of a contract. However that notion was not readily used in all legal systems. It was generally agreed that the words "unless that agreement would not

be valid or effective under the law of the enacting State" were more appropriate.

43. After discussion, it was decided that, subject to review by a drafting group, draft article 5 should read along the lines of: "These Rules may be derogated from or their effect may be varied by agreement, unless [otherwise provided in these Rules or] the agreement would not be valid or effective under the law of the enacting State".

**Article 6. [Compliance with requirements for signature] [Presumption of signing]**

44. The text of draft article 6 as considered by the Working Group was as follows:

"(1) Where the law requires a signature of a person, that requirement is met in relation to a data message if [a method] [an electronic signature] is used which is as reliable as was appropriate for the purpose for which the data message was generated or communicated, in the light of all the circumstances, including any relevant agreement.

"(2) Paragraph (1) applies whether the requirement referred to therein is in the form of an obligation or whether the law simply provides consequences for the absence of a signature.

Variant A

"(3) It is presumed that [a method] [an electronic signature] is reliable for the purpose of satisfying the requirement referred to in paragraph (1) if that method ensures that:

(a) the data used for the creation of an electronic signature are unique to the holder of the signature [creation] device within the context in which they are used;

(b) the holder of the signature [creation] device [has] [had at the relevant time] sole control of that device;

(c) the electronic signature is linked to the [information] [the data message or the part of that message] to which it relates [in a manner which guarantees the integrity of that information];

(d) the holder of the signature [creation] device is objectively identified within the context [in which the device is used] [of the data message].

Variant B

"(3) In the absence of proof to the contrary, the use of an electronic signature is presumed to prove:

(a) that the electronic signature meets the standard of reliability set out in paragraph (1);

(b) the identity of the alleged signer; and

(c) that the alleged signer approved the information to which the electronic signature relates.

"(4) The presumption in paragraph (3) applies only if:

(a) the person who intends to rely on the electronic signature notifies the alleged signer that the electronic signature is being relied upon [as equivalent to the handwritten signature of the alleged signer] [as proof of the elements listed in paragraph (3)]; and

(b) the alleged signer fails to notify promptly the person who issues a notification under subparagraph (a) of the reasons for which the electronic signature should not be relied upon [as equivalent to the handwritten signature of the alleged signer] [as proof of the elements listed in paragraph (3)].

Variant C

"(3) In the absence of proof to the contrary, the use of an electronic signature is presumed to prove:

(a) that the electronic signature meets the standard of reliability set out in paragraph (1);

(b) the identity of the alleged signer; and

(c) that the alleged signer approved the information to which the electronic signature relates.

"[(4)][(5)] The provisions of this article do not apply to the following: [...]."

General remarks

45. There was general agreement in the Working Group that the purpose of draft article 6 was to build upon article 7 of the Model Law and provide guidance as to how the test of reliability in article 7(1)(b) could be satisfied. It was also agreed that the means of achieving that result should be consistent with the terms of the Model Law.

Paragraphs (1) and (2)

46. There was considerable support for paragraphs (1) and (2) of draft article 6 as currently drafted, although some support was also expressed in favour of reproducing in draft article 6(1) the entire text of article 7(1) of the Model Law, as proposed in paragraph 41 of the note by the Secretariat (A/CN.9/WG.IV/WP.84). It was suggested that quoting more extensively from the Model Law would emphasize that the main goal of paragraph (1) was to deal with the case where any type of electronic signature (including "non-enhanced" methods of authentication) was used for signing purposes (i.e., with intent to create a functional equivalent of a handwritten signature). Since the substance of article 7(1)(a) of the Model Law was already included in the definition of "electronic signature" in draft article 2(a) of the Uniform Rules, it was noted that that approach would require the definition to be reconsidered.

47. It was widely felt, however, that repetition of the entire text of article 7 was not necessary in draft article 6, principally on the basis that the resulting text would be unnecessarily long and complex, and that the substance of article 7(1)(a) could be retained in the definition of "electronic signature" in the Uniform Rules.

48. As a matter of drafting, there was general support for including the reference to "an electronic signature" (currently in square brackets) as opposed to "a method". It was pointed out that since the subject of the Uniform Rules was electronic signatures, they should be referred to directly in draft article 6. A proposal that those two phrases could be merged to

reflect the text agreed in respect of draft article 3, "a method of creating an electronic signature", was not widely supported.

49. A proposal was made that draft article 6 should be based upon, and not detract from, three principles: first, the reliability test set forth in article 7(1)(b) of the Model Law; secondly, the importance of party agreement, as currently reflected in draft article 5 and the last words of draft article 6(1); and thirdly, the possibility that applicable law could mandate the use of a particular form of signature technique, as currently reflected in draft article 8. It was also proposed that the text referred to in paragraph 42 of the note by the Secretariat (A/CN.9/WG.IV/WP.84) under which "the legal consequences of the use of a signature shall apply equally to the use of electronic signatures" should also be incorporated. The following text was suggested to reflect those principles:

> "6(1) Where the law requires a signature of a person, that requirement is met in relation to a data message if:
>
> (a) an electronic signature is used which is as reliable as was appropriate for the purpose for which the data message was generated or communicated, in the light of all relevant circumstances; or
>
> (b) the parties to a contract agree on the form of electronic signature to be used and do, in fact, use that form of electronic signature; or
>
> (c) the terms of the applicable law mandate a form of electronic signature and that form of electronic signature is, in fact, used.
>
> "6(2) Paragraph (1) applies whether the requirement referred to therein is in the form of an obligation or whether the law simply provides consequences for the absence of a signature.
>
> "6(3) The legal consequences of the use of a signature shall apply equally to the use of an electronic signature which meets the requirements of paragraph (1)."

50. With reference to the drafting of that proposal, one concern expressed was that the use of the word "contract" in proposed paragraph (1)(b) was too narrow and did not reflect the broader concept included in the current formulation of draft article 5, that is, one which did not restrict the nature of the agreement referred to and did not mention the parties between whom that agreement might be reached. It was also suggested that paragraph (2) should include, in addition to a reference to "mandating" the use of a form of electronic signature, a reference to applicable law "permitting" the use of a particular form of signature. Some concern was also expressed as to the reference to a "form of signature" and it was clarified that what was intended was a "method" of signature.

51. As to the substance of the proposal, it was suggested that paragraph (1)(b) should be left to draft article 5, since it might lead to some confusion if included within draft article 6 and result in a more narrow interpretation of the principle of party autonomy than was intended by the Working Group. It was also questioned whether paragraph (1)(b) would allow parties to use a method of signature that was more reliable than a method which they had previously agreed upon. To address that issue, it was proposed that the paragraph should refer to "a method at least as reliable as the method agreed upon". It was also suggested that paragraph (1)(c) did not need to be stated, since it was clear that any State could adopt such an approach if it chose to do so, and that paragraph (3) was superfluous as it was simply a restatement of the effect of paragraph (1). The concern was also expressed that the reference to the consequences of the use of a signature might lead to a broad interpretation which might not be appropriate with respect to all the consequences of the use of a handwritten signature. By way of illustration, the example was given of certain evidentiary provisions relating to the proof of a

handwritten signature which could not easily be transposed for electronic signatures.

52. It was observed that the proposal, particularly paragraph (1)(c), might be useful in addressing the situation where the rule of conflicts suggested that the applicable law would be law other than that of the enacting State. It was suggested that if all three subparagraphs of paragraph (1) were not to be retained, the draft article could be interpreted as presupposing that all countries had adopted the Model Law, which might not be the case. For that reason, it was suggested that paragraph (1)(c) should be retained in order to address possible questions of conflict. After further discussion, however, the proposal did not receive wide support.

53. The Working Group agreed that paragraphs (1) and (2) of draft article 6 as currently drafted should be adopted, with the phrase "an electronic signature" subject to possible reconsideration after review by a drafting group to ensure consistency between the provisions of the Uniform Rules. The Working Group proceeded to consider the definition of "electronic signature" set forth in draft article 2(a).

Definition of "electronic signature" – draft article 2(a)

54. The Working Group considered whether the definition of "electronic signature" in the Uniform Rules should follow drafting which reflected the terms of article 7 of the Model Law, or whether it might be possible to adopt a different formulation.

55. It was proposed in draft article 2(a): that the words in square brackets referring to "data in electronic form" should be adopted in preference to the words "any method in relation to a data message", with the phrase "attached to" substituted for "affixed to"; and that the remainder of the definition following the words currently in square brackets should read "that identifies the signatory and purports to indicate the signatory's intention to approve or associate itself with the information contained in the data message". It was also proposed that, since the term "identification" could be broader than mere identification of a person by name, the following sentence should be added to the definition by way of clarification: "For the purposes of this definition, identification of the signatory includes distinguishing him or her, by name or otherwise, from any other person."

56. The view was expressed, however, that drafting which reflected the terms of the Model Law should be closely followed, since adopting the language proposed in paragraph 55 above amounted to unnecessary modification of the Model Law and did not assist the Working Group in addressing the key purpose of draft article 6, which was currently set forth in the variants of paragraph (3). It was also pointed out that the question of the meaning of "identification" had been raised in paragraph 32 of the note by the Secretariat (A/CN.9/WG.IV/WP.84) and might appropriately be reflected in a guide to enactment of the Uniform Rules.

57. After discussion, the Working Group adopted the following text of the definition, subject to possible reconsideration to ensure consistency between the provisions of the Uniform Rules:

> "Electronic signature" means any method that is used to identify the signature holder in relation to the data message and indicate the signature holder's approval of the information contained in the data message."

58. The Working Group agreed that the meaning of the term "identification" should be addressed in a guide to enactment along the lines of the last sentence of paragraph 55 above and paragraph 32 of the note by the Secretariat (A/CN.9/WG.IV/WP.84).

Paragraph (3)

59. General support was expressed in favour of variant A.

Opening words

60. It was widely felt that paragraph (3) was an essential provision if the Uniform Rules were to meet their goal of providing more certainty than readily offered by the Model Law as to the legal effect to be expected from the use of particularly reliable types of electronic signatures. It was recalled that paragraph (1), to the extent it reproduced article 7(1) of the Model Law, dealt with the determination of what constituted a reliable method of signature in the light of the circumstances. Such a determination could only be made under article 7 of the Model Law by a court or other trier of fact intervening ex post, possibly long after the electronic signature had been used. In contrast, the benefit expected from the Uniform Rules in favour of certain techniques, which were recognized as particularly reliable, irrespective of the circumstances in which they were used, was to create certainty (through either a presumption or a substantive rule), at or before the time any such technique of electronic signature was used (ex ante), that using such a recognized technique would result in legal effects equivalent to those of a handwritten signature (A/CN.9/WG.IV/WP.84, para. 43).

61. Divergent views were expressed as to the form in which the rule contained in paragraph (3) should be expressed. One view was that establishing a presumption was the most appropriate way of drawing attention to the expected result of paragraph (3), namely to establish certainty with respect to the use of a certain signature technique by requiring the party who wished to challenge the type of electronic signature envisaged in paragraph (3) to produce evidence as to the lack of reliability of that signature. Another view was that establishing a presumption might raise difficult questions regarding the level of the presumption and the means by which it could be rebutted. It was observed that the Uniform Rules might not be an appropriate instrument to attempt any harmonization of procedural law. Yet another view was that paragraph (3) should not be in the form of a rule, whether a rule of evidence or a substantive rule, but that it should merely list a number of factors to be taken into account when assessing the reliability of a given signature technique. That view was objected to on the grounds that, if paragraph (3) were merely to list a number of factors, it would add little value or certainty to article 7 of the Model Law, which was already accompanied by a list of factors in paragraph 58 of the Guide to Enactment.

62. The prevailing view was that, in order to provide certainty as to the legal effect resulting from the use of what might or might not be called an "enhanced electronic signature" under draft article 2, paragraph (3) should not merely list certain factors to be taken into account when assessing the reliability of an electronic signature. Instead, it should expressly establish the legal effects that would result from the conjunction of certain technical characteristics of an electronic signature. As to how those legal effects would be established, it was agreed that enacting States, depending on their law of civil and commercial procedure, should be free to adopt a presumption or to proceed by way of a direct assertion of the linkage between certain technical characteristics and the legal effect of a signature. It was agreed that wording along the following lines should be adopted:

> "An electronic signature is considered to be reliable for the purpose of satisfying the requirements referred to in paragraph (1) if ..."

It was suggested that additional words might be necessary to avoid the possible misinterpretation of paragraph (3) as affecting the operation of the general rule contained in paragraph (1). While paragraph (3) would appropriately offer the benefit of certainty (which was also described as establishing a "safe haven" rule), it should not prevent parties from demonstrating that electronic signatures that did not fall under paragraph (3) could also satisfy the requirements in paragraph (1). Another suggestion was that, in order to avoid creating an irrebuttable presumption, paragraph (3) should be made subject to evidence being produced to demonstrate that a given use of an electronic signature under paragraph (3) should not in fact result in that electronic signature being treated as reliable. Those two suggestions were adopted by the Working Group. The matter was referred to the drafting group.

Variant A, paragraph 3(a)

63. Some doubts were expressed about the signature creation device being "unique" to the signature device holder. From a technical point of view it was suggested that the device could be "uniquely linked", but not "unique"; the linkage between the data used for creation of the signature and the device holder was the essential element. The following formulation was suggested for subparagraph (a):

> "(a) the data used for creation of the electronic signature are linked, within the context in which they are used, to the signatory and to no other person".

64. Concern was expressed that subparagraph (a) might mean that the signature device could be linked to different signatories in different contexts.

65. As a matter of drafting, it was proposed that the opening phrase of subparagraph (a) should be "the means of creating the electronic signature". The Working Group adopted subparagraph (a) as proposed (see para. 63 above) with that amendment.

Variant A, paragraph (3)(b)

66. One concern expressed in relation to the phrase "sole control" was how it would affect the ability of the holder of the signature device to authorize another person to use the signature on the holder's behalf. A related concern was use of the signature device in the corporate context where the corporate entity would be the signature holder but would require a number of persons to be able to sign on its behalf. It was suggested that that issue could be addressed by deleting the word "sole" and including, in addition to the reference to the holder of the signature device, the words "and any authorized signatory".

67. A further view in support of the deletion of "sole" was that it was a restrictive requirement which might exclude existing business applications such as the one where the signature device existed on a network and was capable of being used by a number of people. It was pointed out, however, that that situation could still operate within the concept of "sole control"; the network would presumably relate to a particular entity which would be the signature holder and thus capable of maintaining control over it. If that was not the case, and the signature device was widely available, it should not be covered by the rules.

68. In support of retaining the concept of "sole", the view was expressed that it was essential to ensure that the signature device was capable of being used by only one person at any given time, principally the time at which the signature was created, and not by some other person as well. It was suggested that the question of agency or authorized use of the signature device should be addressed in the definition of "signature holder", not in the substance of the rules. To address the concerns expressed, the following text was suggested:

> "(b) the means of creating the electronic signature was, at the relevant time, under the control of the signatory and no other person".

69. Some concern was expressed as to the meaning of the words "at the relevant time". It was pointed out that it was essential to retain this concept because the means of creating the signature might include both software and hardware, and the latter might be used by a number of persons to create signatures, so that it needed to be made clear that the signatory had control of those means at the time the signature was created. It was suggested that this could be clarified by stating that the relevant time was the "time of signing". Another suggestion was that since the time of generation of the signature might also be a "relevant time", the phrase could read: "at the time the signature was both generated and used". It was pointed out that, although it might be possible for the time of signing to differ from technology to technology, it would always be a question of fact.

70. A contrary view was that since it would be difficult to prove the exact time of signing, the concept of "relevant time" should be deleted. In response, it was pointed out that deleting any reference to time merely begged the question of whether the signatory had control of the means of creating the signature at all times relevant to the issue in question.

71. After discussion, the Working Group agreed to adopt the phrase "at the time of signing".

Variant A, paragraph (3)(c)

72. The view was expressed that it was essential for paragraph (3)(c) to include the notion of a guarantee of integrity of the information in the data message, since a signature which provided such a guarantee would clearly be a reliable signature within the meaning of draft article 6(1). Where a signature was attached to a document, the integrity of the document and the integrity of the signature were so closely related that it was not possible to conceive of one without the other. In other words, where a signature was used to sign a document, the idea of the integrity of the document was inherent in the use of the signature. It was also noted that the idea of the integrity of the document was closely linked to the use of the signature to signify approval of the content of the document.

73. A contrary view, based upon the distinction drawn in the Model Law between articles 7 and 8, was that, although some technologies provided both authentication (article 7) and integrity (article 8), those concepts could be seen as distinct legal concepts and were treated as such in the Model Law. Since a handwritten signature provided neither a guarantee of the integrity of the document to which it was attached nor a guarantee that any change made to the document would be detectable, the functional equivalence approach required that those concepts should not be added to paragraph (3)(c). The purpose of paragraph (3)(c) was to set forth the criteria to be met in order to demonstrate that a particular method of signature was reliable enough to satisfy a requirement of law for a signature. It was suggested, in support of that view, that requirements of law for a signature could be met without having to demonstrate the integrity of the document. It was noted, however, that the issue of integrity should not be deleted from the Uniform Rules, but should be addressed in the context of draft article 7; in that way signatures could satisfy draft article 6 or draft article 7, or both, depending upon what requirement of law was to be satisfied.

74. It was observed that including the requirement for integrity of the information in draft article 6 suggested the use of one particular technology, which would be inconsistent with the principle of technology neutrality. It was suggested that the use of one particular technology would be too restrictive and would hamper, rather than promote, the use of electronic signatures in a number of countries. In addition, it might create a signature which was more reliable than a handwritten signature and thus go beyond the concept of functional equivalence, possibly prejudicing the use of handwritten signatures.

75. The view was expressed that, although the link between the signature and the data message was clearly required and integrity of the signature was important, those requirements could be distinguished from a requirement of integrity of the information in the data message. A contrary view was that integrity of the signature was not an issue that needed to be addressed and, in any event, could not be separated from a consideration of the integrity of the signed information. It was proposed, however, that the integrity of the signature could be addressed as follows:

> "(c) the electronic signature is linked to the information to which it relates in a manner such that any alteration to the electronic signature, made after its creation, is detectable".

76. That proposal received general support.

77. The view was expressed that, as an alternative to a general requirement that the signature technique used must be able to guarantee the integrity of the document, the notion of integrity of the document could be included as a criterion to be satisfied only in circumstances where that guarantee was the focus of the signature requirement. One proposal was made to address the integrity of the signature and of the information in the data message as separate ideas, by adding works "or to the data message" after the words "to the electronic signature". A further proposal was that the issue of detecting an alteration of the signature should be included in paragraph (3) as proposed in paragraph 75 above, with a separate, additional article reading as follows:

> "Where the law requires a signature to give assurance as to the integrity of information in a document, that requirement is met in relation to a data message by the use of an electronic signature which is linked to the data message in such a manner that any subsequent alteration of the information in the data message would be detectable".

78. The view was expressed that that provision should not be included in a separate provision because it ought to be clear that draft article 6(3) would not be met if one of the reasons for the requirement of a signature was to provide assurance as to the integrity of the document. It was observed that the words "where the law requires a signature to give assurance" might require an inquiry into the reasoning behind the requirement, which would invariably prove difficult. To resolve that difficulty, the provision should be formulated in the negative, along the following lines, and be included as a second sentence in paragraph (3)(c), as follows:

> "(c) the electronic signature is linked to the information to which it relates in a manner such that any alteration to the electronic signature, made after its creation, is detectable. Where the law requires a signature to support the integrity of a signed document, that requirement of integrity is not satisfied unless the electronic signature permits detection of any alteration of the document".

79. Support was expressed in favour of those proposals on the basis that they might satisfy both the situations where integrity of the document was required and those where the signature was required without any reference to integrity. It was suggested, however, that the provision might be more effective if formulated as a proviso, as follows:

> "(c) the electronic signature is linked to the information to which it relates in a manner such that any alteration to the electronic signature, made after its creation, is detectable, provided that, where the purpose of the legal requirement for a signature is to provide assurance as to the integrity of the information in the document, it shall be necessary to establish also that the electronic signature is linked to the data message in a manner ensuring that any alteration made to the data message after creation of the electronic signature is detectable".

80. As between the two proposals, support was expressed in favour of the form drafted as a proviso because it focused upon the purpose of the legal requirements being to provide integrity rather than upon situations where the law required the signature to assure integrity, which might be more difficult to ascertain. It was suggested, however, that the reference should be to "a purpose" rather than "the purpose". A suggestion to delete the reference to a "requirement of law" and simply to refer to any situation where a signature was used for the purpose of assuring integrity was not supported. It was pointed out that, since the overall purpose of draft article 6 was to address requirements of law for a signature, that limitation could not be removed from paragraph (3)(c). After discussion of a number of other suggestions of a drafting nature, the following text was adopted:

> "(c) any alteration to the electronic signature, made after its creation, is detectable and, where a purpose of the legal requirement for a signature is to provide assurance as

to the integrity of the information in the data message, any alteration made to the data message after the time of signing is detectable;"

Variant A, paragraph (3)(d)

81. Some concern was expressed as to the meaning of the word "objective". One view was that that standard of identification might be rather difficult to satisfy in all cases, especially where the context or the content of the signature might be sufficient without requiring what would amount to "objective" or external confirmation of the identity of the signature holder. Another view was that the importance of the requirement was not the actual identification of the signature holder, but that the technology should be capable of objectively identifying the signature holder.

82. The view was expressed that the inclusion in the definition of "electronic signature" of a requirement that the signature be used to identity the signature holder made the inclusion of paragraph (3)(d) in article 6 unnecessary. In support of that view it was noted that, while the idea of objective identification had been included in some national electronic signature laws, that had been in the context of presumptions of identity, not in relation to the reliability of the method of signature. It was noted that it would be hard to envisage a situation where subparagraphs (a) to (c) of paragraph (3) were satisfied by a particular method of signature which did not also satisfy subparagraph (d).

83. After discussion, the Working Group agreed that paragraph (3)(d) should be deleted.

84. At the close of the discussion of paragraph (3), the view was expressed that draft article 6 might need to be redrafted to indicate that any presumption arising from the combination of the elements listed in subparagraphs (a) to (c) might also arise from determination by the parties in any relevant agreement that a given signature technique would be treated among themselves as a reliable equivalent of a handwritten signature. Some support was expressed in favour of that view. Various drafting suggestions were made in that respect. One suggestion, based on article 4 of the Model Law, was to insert the following wording as a separate paragraph or as a subparagraph of paragraph (3): "This article does not affect any right that may exist to establish by agreement the reliability of an electronic signature to satisfy the requirement referred to in paragraph (1)." Another suggestion, geared to the situation where parties would agree on the use of a standard higher than the one expressed in paragraph (3), was to introduce language along the following lines: "Nothing in paragraph (3) shall prevent enforceability as between the parties of standards of reliability higher than those referred to in paragraph (1)." A related proposal read as follows: "Nothing in paragraph (3) shall permit a person to satisfy the requirement referred to in paragraph (1) where that person has agreed to meet a higher standard of reliability which has in fact been met." The last two suggestions were objected to on the grounds that the issues of contractual liability faced by a party who failed to meet a higher standard to which it had agreed should not be dealt with in draft article 6, but under the law governing contractual liability outside the Uniform Rules.

85. The prevailing view was that draft article 5 sufficiently expressed the possibility for parties to derogate from the provisions of the Uniform Rules. It was agreed that renewing the expression of party autonomy in the context of draft article 6 might be repetitious and inappropriately suggest that parties were free to modify, as between themselves, any mandatory requirement of law with respect to the use of a signature.

86. Yet another suggestion was made to introduce additional wording in draft article 6 to address the situation where the reliability of an electronic signature would be presumed as a result of a determination by a State authority under draft article 8. It was generally felt that such a situation was sufficiently dealt with in draft article 8. That suggestion was not supported by the Working Group.

Paragraph (4)

87. There was general agreement that a provision along the lines of paragraph (4), based on a similar provision in various articles of the Model Law ("The provisions of this article do not apply to the following: ..."), should be included in draft article 6.

**Article 7. Presumption of original**

88. The text of draft article 7 as considered by the Working Group was as follows:

"(1) A data message is presumed to be in its original form where, in relation to that data message, [a method] [an electronic signature] [within article 6] is used which:

(a) provides a reliable assurance as to the integrity of the information from the time when it was first generated in its final form, as a data message or otherwise; and

(b) where it is required that information be presented, that information is capable of being displayed to the person to whom it is to be presented;

"(2) The provisions of this article do not apply to the following: [...]."

89. In view of the decision to deal in draft article 6 (3) with the situation where an electronic signature was used to meet a legal requirement for integrity of the information contained in a document, it was generally agreed that it would be superfluous to address that same situation from the perspective of the "originality" of the document. After discussion, the Working Group decided that draft article 7 should be deleted.

**Article 8. Satisfaction of articles 6 and 7**

90. The text of draft article 8 as considered by the Working Group was as follows:

"*Variant A*

"(1) *[The organ or authority specified by the enacting State as competent]* may determine which methods satisfy the requirements of articles 6 and 7.

"(2) Any determination made under paragraph (1) shall be consistent with recognized international standards.

"*Variant B*

"(1) One or more methods of electronic signature may be determined as satisfying the requirements of articles 6 and 7.

"(2) Any determination made under paragraph (1) shall be consistent with recognized international standards."

91. Some support was expressed in favour of variant B on the grounds that it did not emphasize the role of State authorities in making a determination as to which types of electronic signatures would be presumed to satisfy legal requirements for signatures. The prevailing view, however, was that the discussion should proceed on the basis of variant A, which was more descriptive of the role necessarily played by the enacting State in establishing or recognizing any entity that might validate the use of electronic signatures or otherwise certify their quality. In order not to suggest that such entities would always have to be established as State authorities, it was generally agreed that the opening words of paragraph

(1), "[The organ or authority specified by the enacting State]", should be replaced by wording along the following lines: "[The person, organ or authority, whether public or private, specified by the enacting State]".

92. A question was raised as to whether the reference in draft article 8 to draft article 6 should be made more specific. Support was expressed for referring to "the requirement of article 6(1)", since paragraph (1) of article 6 was said to contain the broadest expression of a legal requirement for a signature. The prevailing view, however, was that draft article 8 should not refer to any specific paragraph of draft article 6. When making a determination with respect to the satisfaction of requirements for signature, the competent persons or authorities should be free to refer to article 6(1) or to article 6(3).

93. With respect to paragraph (2), concern was expressed as to the meaning of the words "recognized standards". Consistent with the interpretation suggested at its previous session (see A/CN.9/465, para. 94), the Working Group decided that the word "standard" needed to be interpreted in a broad sense, which would include industry practices and trade usages, legal texts emanating from international organizations, as well as technical standards. It was also decided that the guide to enactment of the Uniform Rules should make it clear that the possible lack of relevant standards should not prevent the competent persons or authorities from making the determination referred to in paragraph (1).

94. It was suggested that an additional paragraph should be introduced in draft article 8 to make it abundantly clear that the purpose of the draft article was not to interfere with the normal operation of the rules of private international law. It was stated that, in the absence of such a provision, draft article 8 might be misinterpreted as encouraging enacting States to discriminate against foreign electronic signatures on the basis of non-compliance with the rules set forth by the relevant person or authority under paragraph (1). The following text was proposed: "(3) Nothing in this article affects the operation of the rules of private international law." That proposal was generally supported.

95. After discussion, the Working Group adopted draft article 8 subject to the above changes and referred it to the drafting group.

**Article 9. Responsibilities of the signature device holder**

96. The text of draft article 9 as considered by the Working Group was as follows:

"(1) Each signature device holder shall:

(a) exercise reasonable care to avoid unauthorized use of its signature device;

(b) notify appropriate persons without undue delay if:

(i) the signature device holder knows that the signature device has been compromised; or

(ii) the circumstances known to the signature device holder give rise to a substantial risk that the signature device may have been compromised;

(c) [Where a certificate is used to support the signature device,] [Where the signature device involves the use of a certificate,] exercise reasonable care to ensure the accuracy and completeness of all material representations made by the signature device holder which are relevant to [the life-cycle of the] certificate, or which are to be included in the certificate.

"(2) A signature device holder shall be liable for its failure to satisfy the requirements of paragraph (1)."

Title

97. Concerns were expressed as to the use of the word "responsibilities" in the title of the draft article. It was suggested that that term was too vague since it did not clearly reflect the subject of the draft article, which was the obligations or duties of the signatory. It was recalled that the Working Group had discussed a number of problems raised by the use of the words "duty" and "obligation" at previous meetings, and that "responsibilities" had been widely regarded, at the time, as a less controversial term. It was proposed that, since the purpose of the draft article was to establish a code of conduct for signatories, the title could be "Conduct of signatory". After discussion, that proposal was widely accepted.

Paragraph (1)

98. At the outset, the Working Group discussed the scope of application of paragraph (1). The view was expressed that subparagraphs (a) and (b) should apply generally to all electronic signatures, while subparagraph (c) would only apply to electronic signatures supported by a certificate. In support of that view it was noted that the obligation in paragraph (1) (a), in particular, to exercise reasonable care to prevent unauthorized use of a signature device did not establish an obligation that was unfamiliar and it was, in fact, generally contained in agreements concerning the use of credit cards. A contrary view was that care should be taken in establishing standards of conduct in areas where technology was developing, since those new standards might change existing rules and lead to unintended consequences. It might not be appropriate to apply paragraph (1) (a) more widely than to electronic signatures that might, for example, satisfy draft article 6 (3). In response to that view, it was noted that the provision for variation by agreement in draft article 5 would allow the standards set in draft article 9 to be varied in areas where they were thought to be inappropriate, or where they led to unintended consequences. In response to a further concern as to the application of the Uniform Rules to consumers and the effect of the standard of reasonable care, it was recalled that the Uniform Rules were not intended to overrule laws designed for the protection of consumers.

99. After discussion, the Working Group agreed that subparagraphs (a) and (b) should apply generally to all signatures, and that subparagraph (c) should apply only to signatures supported by certificates. It was noted that a broad application of subparagraphs (a) and (b) would need to be borne in mind when discussing the definition of "signature device holder" or "signatory".

100. With respect to paragraph (1) (b), concern was expressed as to the meaning of the words "appropriate person". It was questioned whether it was obvious with respect to all technologies that there would be an appropriate person who should be notified. One view was that it was clear that "appropriate" referred not only to persons who might seek to rely on the signature, but also to persons such as certification service providers, certificate revocation service providers and others. A further view was that the identity of the appropriate person would be covered by the contractual context of the signature use. To address those concerns, it was proposed that the reference to "appropriate persons" should be replaced by wording along the following lines:

"Without undue delay, notify persons who may reasonably be expected by the signatory to rely on or to provide services in support of the electronic signature".

That proposal was widely supported.

101. With respect to paragraph (1) (c), support was expressed in favour of retaining the words first appearing in square brackets, "Where a certificate is used to support the signature device", without the square brackets, and removing the brackets from the words "the life-cycle

of the certificate". It was suggested that the meaning of that phrase should be clearly explained in the guide to enactment. As to the application of paragraph (1) (c), concern was expressed as to the type of certificate covered by that provision. One view was that it might not be appropriate to apply the provision to both low-cost and high-cost certificates, since the duty of care might be excessive in relation to the former. A contrary view was that the standard of "reasonable care" would ensure that the appropriate level of care was applied to all different types of certificates.

Paragraph (2)

101. Concerns were expressed as to the need to retain paragraph (2) in the draft article. One view was that, as currently drafted, paragraph (2) should be deleted as it added nothing to the draft article. It did not specify either the consequences or the limits of liability, both of which were left to national law. A contrary view was that paragraph (2), even though it left the consequences of liability up to national law, did serve to give a clear signal to enacting States that liability should attach to a failure to satisfy the obligations set forth in paragraph (1). It was noted that paragraph 53 of the note by the Secretariat (A/CN.9/WG.IV/WP.84) provided a useful explanation of paragraph (2) and should be included in the guide to enactment.

102. One proposal to amend paragraph (2) was intended to express more clearly that there was to be liability for failure to satisfy paragraph (1) and that the limits of liability were to be determined by the enacting State:

> "The legal consequences of the signature holder's failure to satisfy the requirements of paragraph (1) shall be determined by the enacting State."

103. A further proposal was to retain the existing text of paragraph (2) and to clarify its intent by adding in square brackets the words [*The limits and conditions of liability are to be determined by the enacting State.*]. Neither of those two proposals were supported.

104. A further proposal was to add a test of foreseeability to paragraph (2), in the same manner as the current text of draft article 10. It was observed that that test was increasingly accepted in international trade and would serve to establish an agreed standard for liability. It was recalled, however, that such a test had been proposed at a previous session of the Working Group, but had not received support. That proposal was not pursued. After discussion, the Working Group agreed to adopt the existing text of paragraph (2).

**Article 10. Responsibilities of a supplier of certification services**

105. The text of draft article 10 as considered by the Working Group was as follows:

> "(1) A supplier of certification services shall:
>
> (a) act in accordance with the representations it makes with respect to its practices;
>
> (b) exercise due diligence to ensure the accuracy and completeness of all material representations made by the supplier of certification services that are relevant to the life-cycle of the certificate or which are included in the certificate;
>
> (c) provide reasonably accessible means which enable a relying party to ascertain:
>
> (i) the identity of the supplier of certification services;
>
> (ii) that the person who is identified in the certificate holds, at the

relevant time, the signature device referred to in the certificate;

(iii) the method used to identify the signature device holder;

(iv) any limitations on the purposes or value for which the signature device may be used; and

(v) whether the signature device is valid and has not been compromised;

(d) provide a means for signature device holders to give notice that a signature device has been compromised and ensure the operation of a timely revocation service;

(e) utilize trustworthy systems, procedures and human resources in performing its services.

"(2) In determining whether and the extent to which any systems, procedures and human resources are trustworthy for the purposes of subparagraph (e) of paragraph (1), regard shall be had to the following factors:

(a) financial and human resources, including existence of assets within the jurisdiction;

(b) trustworthiness of hardware and software systems;

(c) procedures for processing of certificates and applications for certificates and retention of records;

(d) availability of information to the [signers][subjects] identified in certificates and to potential relying parties;

(e) regularity and extent of audit by an independent body;

(f) the existence of a declaration by the State, an accreditation body or the supplier of certification services regarding compliance with or existence of the foregoing;

(g) susceptibility to the jurisdiction of courts of the enacting State; and

(h) the degree of discrepancy between the law applicable to the conduct of the supplier of certification services and the law of the enacting State.

"(3) A certificate shall state:

(a) the identity of the supplier of certification services;

(b) that the person who is identified in the certificate holds, at the relevant time, the signature device referred to in the certificate;

(c) that the signature device was effective at or before the date when the certificate was issued;

(d) any limitations on the purposes or value for which the certificate may be used; and

(e) any limitation on the scope or extent of liability which the supplier of certification services accepts to any person.

"*Variant X*

"(4) A supplier of certification services shall be liable for its failure to satisfy the requirements of paragraph (1).

"(5) Liability of the supplier of certification services may not exceed the loss which the supplier of certification services foresaw or ought to have foreseen at the time of its failure in the light of facts or matters which the supplier of certification services knew or ought to have known to be possible consequences of the supplier of certification services' failure to [fulfil the obligations [duties] in][satisfy the requirements of] paragraph (1).

"*Variant Y*

"(4) A supplier of certification services shall be liable for its failure to satisfy the requirements of paragraph (1).

"(5) In assessing the loss, regard shall be had to the following factors:

(a) the cost of obtaining the certificate;

(b) the nature of the information being certified;

(c) the existence and extent of any limitation on the purpose for which the certificate may be used;

(d) the existence of any statement limiting the scope or extent of the liability of the supplier of certification services; and

(e) any contributory conduct by the relying party.

"*Variant Z*

"(4) If damage has been caused as a result of the certificate being incorrect or defective, a supplier of certification services shall be liable for damage suffered by either:

(a) a party who has contracted with the supplier of certification services for the provision of a certificate; or

(b) any person who reasonably relies on a certificate issued by the supplier of certification services.

"(5) A supplier of certification services shall not be liable under paragraph (2):

(a) if, and to the extent, it included in the certificate a statement limiting the scope or extent of its liability to any relevant person; or

(b) if it proves that it [was not negligent][took all reasonable measures to prevent the damage]."

Paragraph (1)

106. A suggestion of a drafting nature was that paragraphs (1)(c) and (3) should be merged, with some criteria being identified as essential for inclusion in the certificate and others to be

included in the certificate or otherwise made available or accessible to the relying party, where they would be relevant to a particular certificate. The factors proposed as essential for inclusion in the certificate (to be set forth in paragraph (1)(c)) were those in paragraph (1)(c)(i) and (ii) and paragraph (3)(c). The remainder of paragraphs (1)(c) and (3) was proposed for inclusion in the second category, to be set forth in a new paragraph (1)(d). That proposal was widely supported.

107. Some concern was expressed as to whether paragraph (3)(e), dealing with limitations on the liability of the certification services supplier, should be included in the second category of criteria or in the certificate itself. One view was that such a limitation should be clearly included in the certificate. A contrary view was that, since technology was developing in such a way that the amount of information that could be included in the certificate was very limited, to include the information required in paragraph (3)(c) to (e) might be out of step with technology and therefore unsustainable. It was observed that the approach of article 5bis of the Model Law, which addressed incorporation by reference, might offer a solution to the difficulty of limited space in the certificate. What would be required would be a reference to the existence of the limitation and an indication of where the precise terms could be found. After discussion, it was agreed that paragraph (3)(e) should be included in the second category of information in a new paragraph (1)(d).

108. Further suggestions of a drafting nature were: (a) to replace the reference to "due diligence" in paragraph (1)(b) with "reasonable care"; (b) to replace "ensure" in paragraph (1)(b) with "validate" or "verify"; (c) to add a reference to a certificate to paragraph (1)(c)(iv) so that limitations on purpose and value would relate to both signatures and certificates; and (d) to clarify the reference to "valid" in paragraph (1)(c)(v) by substituting the word "operational". With the exception of the proposal to change the reference to "ensure" in (b) above, those proposals received wide support.

109. It was observed that since representations by the supplier of certification services might relate not only to its practices, but also to its policy statements, a reference to policy should be included in paragraph (1)(a). That proposal was widely supported.

110. Some concern was expressed as to the meaning of paragraph (1)(c)(ii). It was observed that it would be difficult for the supplier of certification services to make available to a relying party information which showed that the person identified in the certificate was the holder of the signature device at any relevant time. It was suggested that that notion should be replaced by the notion of control in article 6(3) as follows:

> "(ii) that the person who is identified in the certificate had control of the signature device at the time of signing;"

111. It was observed that the reference in paragraph (1)(d) might not be appropriate for some certificates, such as transactional certificates, which are one-time certificates, or low-cost certificates for low-risk applications, both of which might not be subject to revocation. To satisfy that concern, it was proposed that paragraph (1)(d) should be expressed not as a requirement, but as a statement that a timely revocation service existed and that a means of providing notice as to compromise of the signature device existed. Information in respect of both of those elements could be included in a new paragraph (1)(d) (as proposed in para. 2 above) as follows:

> "(d) (v) whether a means exists for the signatory to give notice that a signature device has been compromised;
>
> "(d) (vi) whether a timely revocation service is offered;"

112. While that proposal was widely supported, it was observed that, since paragraph (1)(d) imposed an obligation on the supplier of certification services in respect of the signatory, that notion might need to be retained in draft article 10(1) in addition to the information proposed for addition to a new paragraph (1)(d), which would be relevant to relying parties. It was agreed that paragraph (1)(d) should be retained in addition to the text proposed for subparagraphs (d)(v) and (d)(vi).

113. After discussion, the Working Group decided that paragraph (1) should read along the following lines, subject to revision by a drafting group to ensure consistency of the various provisions and language versions:

"(1) A supplier of certification services shall:

(a) act in accordance with representations it makes with respect to its policies and practices;

(b) exercise reasonable care to ensure the accuracy and completeness of all material representations made by the supplier of certification services that are relevant to the life-cycle of the certificate or which are included in the certificate;

(c) provide reasonably accessible means which enable a relying party to ascertain in the certificate:

(i) the identity of the supplier of certification services;

(ii) that the person who is identified in the certificate has control of the signature device at the time of signing;

(iii) that the signature device was effective as of or before the date when the certificate was issued;

(d) provide reasonably accessible means to enable a relying party to ascertain in the certificate or otherwise where relevant:

(i) the method used to identify the signatory;

(ii) any limitations on the purposes or value for which the signature device of the certificate may be used;

(iii) whether the signature device is operational and has not been compromised;

(iv) any limitation on the scope or extent of liability which the supplier of certification services accepts to any person;

(v) whether means exist for the signatory to give notice that a signature device has been compromised;

(vi) whether a timely revocation service is offered;

(e) Provide a means for a signatory to give notice that a signature device has been compromised and ensure the operation of a timely revocation service;

(f) Utilize trustworthy systems, procedures and human resources in performing its services."

Paragraph (2)

114. The view was expressed that paragraph (2) provided guidance which was important for inclusion in the text of the Uniform Rules, but that it should set forth a non-exhaustive list of factors to be taken into account in determining trustworthiness. It was observed that, as there was currently a lack of guidance available on issues such as those addressed in paragraph (2), the inclusion of the paragraph in draft article 10 would provide useful assistance.

115. A contrary view, which received substantial support, was that paragraph (2) should be deleted for a number of reasons: first, that it was inappropriate to include such a technical list in a legislative text; secondly, that it was likely to cause problems of interpretation; and thirdly, that the notion of trustworthiness could vary depending upon what was expected of the certificate and it might not, therefore, be appropriate to formulate a single list of criteria that would apply to all possible situations. It was proposed that the content of paragraph (2) should be included in a guide to enactment as factors indicating the trustworthiness of the certification services supplier.

116. In response to the proposal to delete paragraph (2), it was recalled that the purpose of including the paragraph in the current draft of article 10 was to ensure that any assessment of the trustworthiness of foreign certificates under draft article 13 could be made upon the basis of the same criteria as would apply to domestic certificates under draft article 10, ensuring equality of treatment. In response to that view, it was questioned whether the issue of equivalence in draft article 13 was the same as that of trustworthiness as addressed in draft article 10.

117. It was proposed that if paragraph (2) was to be included in the text of the Uniform Rules, a number of drafting changes would be required. It was proposed that subparagraphs (g) and (h) were more relevant to draft article 13 and should be deleted from draft article 10. It was also proposed that the reference to "within the jurisdiction" in subparagraph (a) was problematic and that what was important was only that the supplier of certification services should have resources to which recourse could be had, not that they must be in the jurisdiction of the enacting State. It was observed that paragraph (2)(b) was circular in meaning and that a term such as "quality" or "reliability" should be substituted for "trustworthiness". It was generally agreed that, should the list of factors contained in paragraph (2) be finally retained in the Uniform Rules, those drafting suggestions would need to be taken into account. Under the same proviso, it was agreed that the list of factors would need to be made open-ended, through the inclusion of either the words "inter alia" or an additional subparagraph, which might read "and any other relevant factor". While the relevance of the financial situation of the certification services supplier to trustworthiness was questioned, it was suggested that those factors did help to show that the supplier was reliable and trustworthy and fostered the confidence of users.

118. To address a number of the concerns about including paragraph (2) in draft article 10, it was proposed that a separate article could be formulated which would be relevant to determining trustworthiness under draft article 10 as well as under draft article 13.

119. After discussion, the Working Group decided to retain the contents of paragraph (2) between square brackets and to place the paragraph provisionally in a separate article, pending a final decision to be made after discussion of draft article 13.

Paragraph (4)

120. Wide support was expressed in favour of the basic rule of liability set forth in paragraph (4) of variants X and Y, which left it up to national law to determine the consequences of liability. The view was expressed that paragraph (4) was a sufficient statement of the principle of liability, consistent with what the Working Group had decided in respect of draft article 9

concerning the signatory, and that it was not practicable to consider a second paragraph addressing the consequences of that liability.

121. Concern was expressed that paragraph (4) might be interpreted as a rule of absolute liability and that more might be needed to ensure that the supplier of certification services could prove, for example, the absence of fault or contributory fault. What was required was a provision which ensured that there was no strict liability and no penalties, but compensation for loss. Wording along the following lines was proposed:

> "A supplier of certification services may be liable for loss caused by its failure to satisfy the requirements of paragraph (1)."

122. That proposal did not receive support. It was observed that if liability was to be addressed by a simple statement of principle, that statement should indicate that the supplier of certification services should be liable for certain failures; a discretionary provision was not sufficient. It was suggested that the guide to enactment could confirm that the intention of paragraph (4) was not to establish a rule of strict liability.

Paragraph (5)

123. In support of including a paragraph addressing the consequences of liability as set forth in the three variants of paragraph (5), it was observed that suppliers of certification services performed intermediary functions that were fundamental to electronic commerce and that the question of the liability of such professionals would not be sufficiently addressed by adopting a single provision along the lines of paragraph (4). Although the same provision had been adopted by the Working Group in draft article 9, a distinction was drawn between the classes of persons covered by draft articles 9 and 10. The view was expressed that while paragraph (4) might state an appropriate principle for application to signatories, it was not sufficient for addressing the professional and commercial activities covered by draft article 10. In addition, it was noted that, at the current stage of development of the certification industry, there was insufficient legal analysis of the issues relating to liability of certification service providers and inclusion of a more detailed provision in the draft rules would therefore be very useful. In that connection, it was suggested that further attention might need to be given to establishing a limitation period for exercising legal action based on the liability of the certification services provider.

Variant X

124. Paragraph (5) of variant X received limited support. The view was expressed that the test of foreseeability of damage was widely accepted in international law as an appropriate standard and for that reason could be included in draft article 10. A contrary view was that paragraph (5) of variant X established a standard that was higher than would usually be the case in contract law.

Variant Y

125. Wide support was expressed in favour of including paragraph (5) of variant Y in draft article 10. It was noted that while variants X and Z reflected general rules that were already established, variant Y focused specifically upon electronic commerce and provided a very useful list of factors likely to be of most relevance to that context.

126. As an alternative to including the list of factors in the text, and in order to avoid the difficulties raised with respect to liability in the context of draft article 9, it was proposed that the substance of paragraph (5) of variant Y could be included in the guide to enactment to the Uniform Rules. The view was expressed that the factors should not operate to limit the normal criterion for liability that would exist in many States. It was therefore proposed that

paragraph (5) should be stated as indicative criteria or a non-exhaustive list, rather than as a means of interpreting paragraph (4).

Variant Z

127. Limited support was expressed in favour of variant Z. It was observed that variant Z addressed the means by which the supplier of certification services could limit or avoid liability by stating a limit in the certificate or showing that it had not acted negligently. That formulation gave guidance as to how liability should be set, as opposed to the simple statement in paragraph (4), which was little more than a statement of principle and provided no guidance. It was also noted that if the article were limited to paragraph (4), it might be very difficult to prove that the supplier of certification services had not satisfied the requirements in paragraph (1) of draft article 10. In contrast, a provision along the lines of variant Z would enable the burden of proof to be shifted to the supplier of certification services, which in most cases would have the information pertinent to the issue of liability, and should assist the persons named in paragraph (4) of variant Z to prove their case. It was suggested that that type of provision was a good way of striking a balance between what parties must and could prove.

128. A contrary view was that variant Z was too specific as to the parties covered in paragraph (4), that it might not cover situations where the supplier should be liable notwithstanding that it could satisfy the requirements of paragraph (5) and that paragraph (5)(a) might create difficulties in States where limitations of liability were not accepted.

129. After discussion, the Working Group adopted paragraph (4) as set forth in variants X and Y, with the substance of paragraph (5) of variant Y to be included in the guide to enactment as a list of indicative criteria.

**Article 11. Reliance on electronic signatures**

**and**

**Article 12. Reliance on certificates**

130. It was generally agreed, at the outset of the discussion of draft articles 11 and 12, that the two articles should be considered jointly, in view of the need to merge the two sets of provisions and to address the situation of the relying party in the context of both reliance on a signature and reliance on a certificate.

131. The text of draft article 11 as considered by the Working Group was as follows:

"(1) A person is not entitled to rely on an electronic signature to the extent that it is not reasonable to do so.

"(2) [In determining whether reliance is not reasonable,] [In determining whether it was reasonable for a person to have relied on the electronic signature,] regard shall be had, if appropriate, to:

(a) the nature of the underlying transaction that the electronic signature was intended to support;

(b) whether the relying party has taken appropriate steps to determine the reliability of the electronic signature;

(c) whether the relying party took steps to ascertain whether the electronic signature was supported by a certificate;

(d) whether the relying party knew or ought to have known that the electronic signature device had been compromised or revoked;

(e) any agreement or course of dealing which the relying party has with the subscriber, or any trade usage which may be applicable;

(f) any other relevant factor."

132. The text of draft article 12 as considered by the Working Group was as follows:

"(1) A person is not entitled to rely on the information in a certificate to the extent that it is not reasonable to do so.

"(2) In determining whether reliance is not reasonable,] [In determining whether it was reasonable for a person to have relied on the information in a certificate,] regard shall be had, if appropriate, to:

(a) any restrictions placed upon the certificate;

(b) whether the relying party has taken appropriate steps to determine the reliability of the certificate, including reference to a certificate revocation or suspension list where relevant;

(c) any agreement or course of dealing which the relying party has or had at the relevant time with the supplier of certification services or subscriber or any trade usage which may be applicable;

(d) any other relevant factors.

"Variant A

"(3) If reliance on the electronic signature is not reasonable in the circumstances having regard to the factors in paragraph (1), a relying party assumes the risk that the signature is not a valid signature.

"Variant B

"(3) If reliance on the signature is not reasonable in the circumstances having regard to the factors in paragraph (1), a relying party shall have no claim against the signature device holder or the supplier of certification services."

Paragraph (1)

133. As to whether a general provision along the lines of paragraph (1) of draft articles 11 and 12 was needed, various views were expressed. One view was that such a provision was unnecessary, since most legal systems would readily come to the conclusion reached in paragraph (1). Another view was that paragraph (1) should be in the form of a positive rule along the following lines: "A person is entitled to rely on an electronic signature or a certificate if and to the extent that it is reasonable to do so." While support was expressed for adopting a positive formulation, an objection was raised on the grounds that the provision might be misread as creating a right for the relying party in the context of any electronically signed document. In that connection, doubts were expressed as to the legal significance of an "entitlement to rely" on a signature or certificate.

134. A proposal was made to rephrase paragraph (1) as follows: "Reliance on an electronic signature or certificate falling within the scope of these Rules shall be protected if, and to the extent that, such reliance is reasonable in the light of all the circumstances." While support

was expressed in favour of that proposal, it was generally felt that the notion of reliance on electronic signatures and certificates being "protected" by law might raise difficult questions of interpretation. After discussion, the Working Group agreed that the Uniform Rules would provide sufficient guidance as to the standard of conduct to be observed by the relying party if a provision along the lines of paragraph (2) was retained. It was decided that paragraph (1) should be deleted.

Paragraph (2)

135. Various proposals were made for redrafting paragraph (2). One proposal was that the new provision should read along the following lines:

"The relying party [assumes the risk] [bears the consequences] of not:

(a) taking adequate steps to verify the reliability of an electronic signature;

(b) verifying the existence or revocation of a certificate; and

(c) complying with any restriction contained in the certificate."

136. Wide support was expressed for the substance of the proposal. In response to an objection that such a rule might place a burden on relying parties, particularly where such parties were consumers, it was observed that the Uniform Rules were not intended to overrule any rule governing the protection of consumers. It was pointed out in that connection that the Uniform Rules might play a useful role in educating all parties involved, including relying parties, as to the standard of reasonable conduct to be met with respect to electronic signatures. In addition, it was recalled that establishing a standard of conduct under which the relying party should verify the reliability of the signature through readily accessible means was essential to the development of any public-key infrastructure (PKI) system.

137. A question was raised as to the scope of the notion of "relying party". It was generally agreed that, consistent with industry practice, the notion of "relying party" was intended to cover any party that might rely on an electronic signature. Depending on the circumstances, a "relying party" might thus be any person having or not a contractual relationship with the signatory or the certification services provider. It was even conceivable that the certification services provider or the signatory might themselves become "relying parties". Based on that broad definition of "relying party", concern was expressed that draft article 11 should not result in the subscriber of a certificate being placed under an obligation to verify the validity of the certificate it was purchasing from the certification services provider. It was suggested that further clarification as to this point might need to be inserted in the guide to enactment.

138. Another concern was raised as to the possible impact of establishing as a general obligation that the relying party should verify the validity of the electronic signature or certificate. It was stated that, should it fail to comply with that obligation, the relying party should not be precluded from availing itself of the signature or certificate if reasonable verification would not have revealed that the signature or certificate was invalid. It was generally felt that such a situation should be dealt with by the law applicable outside the Uniform Rules, and mentioned, as appropriate, in the guide to enactment.

139. With a view to improving on the drafting of the proposal contained in paragraph 135 above, the following was proposed as a possible substitute for paragraph (2):

"(1) Where an electronic signature is supported by a certificate, a person intending to rely on that electronic signature bears the risk that it may not be reliable for the purposes of article 6(1) if he has not ascertained from information available to him that the certificate is valid for the purpose of supporting that electronic signature.

"(2) The information referred to in paragraph (1) includes information:

(a) which the certification services provider has made available in accordance with article 10(1)(c); and

(b) any other information known to the person intending to rely, which establishes, or gives rise to a substantial risk, that the certificate is not valid for the purpose of supporting that electronic signature."

140. No support was expressed in favour of the above proposal, which was said to establish an unnecessary and potentially misleading connection between draft article 11 and draft article 6. It was generally felt that the issue of the validity of an electronic signature under draft article 6 should not depend upon the conduct of the relying party. That issue should be kept separate from the issue of whether it was reasonable for a relying party to rely on a signature that did not meet the standard set forth in article 6.

141. Another suggestion building upon the text proposed in paragraph 135 above, and taking into account some of the above-mentioned concerns, was as follows:

"(1) A person is entitled to rely on an electronic signature or a certificate if and to the extent that such reliance is reasonable in the light of all the circumstances.

"(2) A relying party should bear the risk that an electronic signature is not valid if the relying party fails to take reasonable steps to verify the reliability of the electronic signature.

"(3) Where an electronic signature is supported by a certificate, a relying party shall bear the risk that the certificate is not valid if the relying party fails:

(a) to take reasonable steps to verify the existence, suspension or revocation of the certificate; or

(b) to comply with or to observe any restrictions or limitations contained in the certificate.

"(4) If a relying party fails to take the steps set out in paragraphs (2) and (3), such failure may be taken into account in determining:

(a) whether the relying party is entitled to seek recovery from any person; or

(b) the extent to which the amount otherwise recoverable by the relying party should be reduced as a consequence of the relying party's conduct."

142. While some support was expressed for the substance of the proposal, it was generally felt that it would not be appropriate for the Uniform Rules to attempt to deal in any detail with the law of civil or commercial liability, as suggested in paragraph (4) of the new proposal.

143. After discussion, the Working Group decided that draft article 11 should read along the following lines:

"A relying party shall bear the legal consequences of its failure to:

(a) take reasonable steps in the light of the circumstances to verify the reliability of an electronic signature; or

(b) where an electronic signature is supported by a certificate, take reasonable steps in the light of the circumstances to:

(i) verify the validity, suspension or revocation of the certificate; and

(ii) observe any limitation with respect to the certificate."

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Notes

[1] Official Records of the General Assembly, Fifty-first Session, Supplement No. 17 (A/51/17), paras. 223-224.

[2] Ibid., Fifty-second Session, Supplement No. 17 (A/52/17), paras. 249-251.

[3] Ibid., Fifty-third Session, Supplement No. 17 (A/53/17), paras. 207-211.

[4] Ibid., Fifty-fourth Session, Supplement No. 17 (A/54/17), paras. 308-314.

# ANNEX

## Draft articles 1 and 3 to 11 of the UNCITRAL Uniform Rules on Electronic Signatures

*(as adopted by the UNCITRAL Working Group on Electronic Commerce at its thirty-sixth session, held in New York from 14 to 25 February 2000)*

**Article 1. Sphere of application**

These Rules apply where electronic signatures are used in the context* of commercial** activities. They do not override any rule of law intended for the protection of consumers.

*The Commission suggests the following text for States that might wish to extend the applicability of these Rules:

"These Rules apply where electronic signatures are used, except in the following situations: [...]."

**The term "commercial" should be given a wide interpretation so as to cover matters arising from all relationships of a commercial nature, whether contractual or not. Relationships of a commercial nature include, but are not limited to, the following transactions: any trade transaction for the supply or exchange of goods or services; distribution agreement; commercial representation or agency; factoring; leasing; construction of works; consulting; engineering; licensing; investment; financing; banking; insurance; exploitation agreement or concession; joint venture and other forms of industrial or business cooperation; carriage of goods or passengers by air, sea, rail or road.

...

**Article 3. Equal treatment of signature technologies**

None of these Rules, except article 5, shall be applied so as to exclude, restrict or deprive of legal effect any method of creating an electronic signature that satisfies the requirements referred to in article 6 (1) of these Rules or otherwise meets the requirements of applicable law.

**Article 4. Interpretation**

(1) In the interpretation of these Rules, regard is to be had to their international origin and to the need to promote uniformity in their application and the observance of good faith.

(2) Questions concerning matters governed by these Rules which are not expressly settled in them are to be settled in conformity with the general principles on which these Rules are based.

**Article 5. Variation by agreement**

These Rules may be derogated from or their effect may be varied by agreement, unless that agreement would not be valid or effective under the law of the enacting State [or unless otherwise provided for in these Rules].

**Article 6. Compliance with a requirement for a signature**

(1) Where the law requires a signature of a person, that requirement is met in relation to a data message if an electronic signature is used which is as reliable as was appropriate for the purpose for which the data message was generated or communicated, in the light of all the circumstances, including any relevant agreement.

(2) Paragraph (1) applies whether the requirement referred to therein is in the form of an obligation or whether the law simply provides consequences for the absence of a signature.

(3) An electronic signature is considered to be reliable for the purpose of satisfying the requirement referred to in paragraph (1) if:

(a) the means of creating the electronic signature is, within the context in which it is used, linked to the signatory and to no other person;

(b) the means of creating the electronic signature was, at the time of signing, under the control of the signatory and of no other person;

(c) any alteration to the electronic signature, made after the time of signing, is detectable; and

(d) where a purpose of the legal requirement for a signature is to provide assurance as to the integrity of the information to which it relates, any alteration made to that information after the time of signing is detectable.

(4) Paragraph (3) does not limit the ability of any person:

(a) to establish in any other way, for the purpose of satisfying the requirement referred to in paragraph (1), the reliability of an electronic signature; or

(b) to adduce evidence of the non-reliability of an electronic signature.

(5) The provisions of this article do not apply to the following: [...]

**Article 7. Satisfaction of article 6**

(1) *[Any person, organ or authority, whether public or private, specified by the enacting State as competent]* may determine which electronic signatures satisfy the provisions of article 6.

(2) Any determination made under paragraph (1) shall be consistent with recognized international standards.

(3) Nothing in this article affects the operation of the rules of private international law.

**Article 8. Conduct of the signatory**

(1) Each signatory shall:

(a) exercise reasonable care to avoid unauthorized use of its signature device;

(b) without undue delay, notify any person who may reasonably be expected by the signatory to rely on or to provide services in support of the electronic signature if:

(i) the signatory knows that the signature device has been compromised; or

(ii) the circumstances known to the signatory give rise to a substantial risk that the signature device may have been compromised;

(c) where a certificate is used to support the electronic signature, exercise reasonable care to ensure the accuracy and completeness of all material representations made by the signatory which are relevant to the certificate throughout its life-cycle, or which are to be included in the certificate.

(2) A signatory shall be liable for its failure to satisfy the requirements of paragraph (1).

**Article 9. Conduct of the supplier of certification services**

(1) A supplier of certification services shall:

(a) act in accordance with representations made by it with respect to its policies and practices;

(b) exercise reasonable care to ensure the accuracy and completeness of all material representations made by it that are relevant to the certificate throughout its life-cycle, or which are included in the certificate;

(c) provide reasonably accessible means which enable a relying party to ascertain from the certificate:

(i) the identity of the supplier of certification services;

(ii) that the person who is identified in the certificate had control of the signature device at the time of signing;

(iii) that the signature device was operational on or before the date when the certificate was issued;

(d) provide reasonably accessible means which enable a relying party to ascertain, where relevant, from the certificate or otherwise:

(i) the method used to identify the signatory;

(ii) any limitation on the purpose or value for which the signature device or the certificate may be used;

(iii) that the signature device is operational and has not been compromised;

(iv) any limitation on the scope or extent of liability stipulated by the supplier of certification services;

(v) whether means exist for the signatory to give notice that a signature device has been compromised;

(vi) whether a timely revocation service is offered;

(e) provide a means for a signatory to give notice that a signature device has been compromised, and ensure the availability of a timely revocation service;

(f) utilize trustworthy systems, procedures and human resources in performing its services.

(2) A supplier of certification services shall be liable for its failure to satisfy the requirements of paragraph (1).

**[Article 10. Trustworthiness**

In determining whether and the extent to which any systems, procedures and human resources utilized by a supplier of certification services are trustworthy, regard shall be had to the following factors:

(a) financial and human resources, including existence of assets;

(b) quality of hardware and software systems;

(c) procedures for processing of certificates and applications for certificates and retention of records;

(d) availability of information to signatories identified in certificates and to potential relying parties;

(e) regularity and extent of audit by an independent body;

(f) the existence of a declaration by the State, an accreditation body or the supplier of certification services regarding compliance with or existence of the foregoing; and

(g) any other relevant factor.]

**Article 11. Conduct of the relying party**

A relying party shall bear the legal consequences of its failure to:

(a) take reasonable steps to verify the reliability of an electronic signature; or

(b) where an electronic signature is supported by a certificate, take reasonable steps to:

(i) verify the validity, suspension or revocation of the certificate; and

(ii) observe any limitation with respect to the certificate.